

REMARKS

By the above amendment, new dependent claims 10-14 have been presented in order to clarify features of the present invention. Further, a new independent claim 15 corresponding to features of claims 1 and 3 and new dependent claims 16 and 17 have been presented.

More particularly, Applicants note that the present invention is directed to an automatic liquid handling system, which as illustrated in Figures 1 and 2 of the drawings of this application, includes a dispensing tip container, a dispensing head, a head-moving mechanism, a sensor, and a control device. The dispensing head 6 has attachment portions to which at least one dispensing tip 8 is attached, and when one or more dispensing tips are attached to the attachment portions, the dispensing head is capable of performing sucking and expelling operations for sucking liquid in or expelling liquid out from the one or more of the dispensing tips. The moving mechanism 5 in form of a robot moves the dispensing head 6, and as illustrated in Fig. 2, a sensor 19 in the form of a light emitting unit 19a and a light receiving unit 19b is arranged to delimit a sensing region, as represented by the light path or axis 19c, so that the sensor has a sensing region, as represented by the optical or light path axis 19c, that extends in a direction which is slanted with respect to a direction in which the head moves. That is, the head moves in an X-axis or Y-axis direction and the sensing region, as represented by the light path or optical axis, forms an angle of about 45° with respect to the X-axis or Y-axis. As pointed at page 10, lines 2-6 of the specification of this application, with the dispensing detector 19 thus arranged, each of the dispensing tips 8 mounted on the head 6 can be sensed

regardless of whether the dispensing head 6 is oriented in the direction of the X-axis or the Y-axis. Applicants note that claim 1 recites the feature of a sensor that senses if one or more dispensing tips are attached to the attachment portions of the dispensing heads when the head moves relative to the sensor, wherein the sensor has a sensing region that extends in a direction slanted with respect to a direction in which the dispensing head moves, and which sensing region is necessarily represented by the optical axis of the light path 19c as illustrated in Fig. 2, and the newly added dependent claims further limit such features. Applicants submit that the features as recited in the claims are not disclosed or taught in the cited art as will become clear from the following discussion.

As to the provisional rejection of claim 1 on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1 and 7 of co-pending application number 10/714,891 in view of Tajima et al. (US 2003/0075556 A1); the provisional rejection of claim 1 on the ground of non-statutory obviousness-type double patenting is being unpatentable over claims 1 and 10 of co-pending application no. 10/714,889 in view of Tajima et al. (US 2003/0075556 A1); the provisional rejection of claims 1, 3 and 9 on the ground non-statutory obviousness-type double patenting as being unpatentable over claims 1 and 5 of co-pending application no. 11/116,299 in view of Tajima et al. (US 2003/0075556 A1); the rejection of claims 1-8 under 35 U.S.C. §103(a) as being unpatentable over Paschetto et al. (US 2002/0108857 A1) in view of Tajima et al. (2003/0075556 A1); and the rejection of claim 9 under 35 U.S.C. §103(a) as being unpatentable over Paschetto et al. (US 2002/0108857 A1) and Tajima et al. (US 2003/0075556

A1) further in view of Anderson (US 2002/0131894 A1); such rejections are traversed, and reconsideration and withdrawal of the rejections are respectfully requested.

With respect to the provisional non-statutory obviousness-type double patenting rejections, as recognized by the Examiner, such rejections are “provisional”, and Applicants consider it unnecessary to respond thereto until an actual rejection is set forth. In particular, the Examiner recognized that none of the claims of the co-pending applications, as identified by the Examiner, recite the feature of claim 1 of this application of:

a sensor that senses if one or more dispensing tips are attached to the attachment portions of the dispensing head when the head moves relative to the sensor, wherein the sensor has a sensing region that extends in a direction slanted with respect to a direction in which a the dispensing moves, and generates an output indicative of a status of the dispensing tips attached to the attachment portions of the dispensing head. (emphasis added)

In a somewhat similar manner, with regard to the rejections under 35 U.S.C. §103, the Examiner recognizes that “Paschetto et al. does not disclose that the sensor has a sensing region that extends in a direction slanted with respect to a direction in which the dispensing head moves.” (emphasis added)

In order to attempt to overcome the deficiencies of the claims of the co-pending applications and the deficiency of the disclosure of Paschetto et al., the Examiner cites Tajima et al., contending at page 11 of the Office Action that:

Tajima et al. discloses an automatic liquid handling system wherein the sensor has a sensing region that extends in a direction slanted with respect to a direction in

which the dispensing head moves (see paragraph [0025] and Figure 5). (emphasis added)

The Examiner contends that it would be obvious to modify the claims of the co-pending applications and the teachings of Paschetto et al. to provide the recited features. Applicants submit that the Examiner mischaracterizes the disclosure of Tajima et al. in relation to the recited features of claim 1, and the other claims of this application, such that the combination fails to provide the recited features of claim 1 and the dependent claims of this application and the Examiner has engaged in a hindsight reconstruction attempt, which does not provide the claimed features.

Looking to Tajima et al. paragraph [0025], this paragraph only indicates that an optical axis of the light receiving device is directed to a movable region of liquid passage. As indicated in paragraph [0027], the optical condition of the liquid passage can be obtained. Thus, Tajima et al does not disclose or teach that the sensor “senses if one or more dispensing tips are attached to the attachment portion of the dispensing head when the head moves relative to the sensor”, as recited in claim 1. Further, as shown in Figure 5 of Tajima et al., and as described in paragraphs [0134] and [0135], the optical axis for the light emitting elements 50₁-50₈ and the light receiving elements 51₁-51₈ are considered with respect to the pipette tips 18₁-18₈, and as shown in Fig. 5(b), the tips are movable upwardly or downwardly with respect to the optical axis, which extends in a direction perpendicular with respect to the movement direction. This arrangement, which is utilized for sensing liquid passage and not for sensing dispensing tips attached to the attachment portion of the dispensing head when the head moves relative to the sensor, is illustrated in each of Figs. 5-12 of Tajima et al., and Applicants submit that a perpendicular

direction, as represented by the optical axis of the light detection devices in Tajima et al. with respect to the movement direction, does not provide the other recited features of claim 1 of "wherein the sensor has a sensing region that extends in a direction slanted with respect to a direction in which the dispensing head moves". (emphasis added) Thus, Applicants submit that Tajima et al., irrespective of the contention by the Examiner, does not disclose or teach the slanted angular relationship, as illustrated in Figure 2 of the drawings of this application, with the attendant advantages, as described in the specification of this application. Accordingly, Applicants submit that claim 1 and the dependent claims recite features not rendered obvious by the disclosure or teaching of Tajima et al. so as to properly support the provisional non-statutory obviousness-type double patenting rejections as set forth in the Office Action, nor the rejection under 35 U.S.C. §103 based upon the combination of Tajima et al. with Paschetto et al. and/or Anderson. In this regard, Anderson has only been cited for movement in different directions, and does not overcome the deficiencies regarding the direction of the sensing region or optical axis or light path axis being a slanted direction with respect to the direction of movement of the dispensing head. Accordingly, Applicants submit that all claims patentable distinguish over the cited art and should be considered allowable thereover.

Applicants further note that with respect to the dependent claims irrespective of the continuation of the Examiner, Tajima et al. provides no disclosure or teaching with respect to the features of (1) claim 4 a memory that store information about a number of dispensing tips to be attached...(emphasis added). (2) claim 5 "adjusting means for adjusting the

number of dispensing tips...the information stored in the memory..."

(emphasis added); or claims 6-8 with respect to "generates a comparison result indicating". Likewise, it is apparent that Tajima et al. does not disclose the 45° relationship of claim 9 or the axis relationship of claims 10-14. Thus, the dependent claims recite further features which patentably distinguish over the cited art which should be considered allowable thereover.

With respect to claims 15 - 17, applicants submit that the cited art fails to disclose or teach a "sensor" operating in the manner set forth, as pointed out above, and other structural and operational features corresponding to features of claims 1 and 3. Further, dependent claims 16 and 17 define the feature of comparison and abnormality indicated in a particular manner not disclosed in the cited art. According, such claims should also be considered allowable.

In view of the above amendments and remarks, Applicants submit that all claims should now be in condition for allowance an issuance of an action of a favorable nature is courtesy solicited.

To the extent necessary, Applicants petition for an extension of time under 37 CFR §1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (Case No. 1297.43787X00) and please credit any excess fees to such deposit account.

Respectfully submitted,

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